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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,203	12/15/2003	Toru Kasai	032183	4779

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EXAMINER

AFTERGUT, JEFF H

ART UNIT PAPER NUMBER

1733

DATE MAILED: 06/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/734,203	<b>Applicant(s)</b> KASAI ET AL.	
	<b>Examiner</b> Jeff H. Aftergut	<b>Art Unit</b> 1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)<br>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)<br>3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12-15-03</u> . | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____<br>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)<br>6) <input type="checkbox"/> Other: ____ |
|--|--|

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 11-15, the following language appears: "a device for wrapping a tape-like release film on the laminated prepreg sheets in a circumferential direction after the predetermined number of prepreg sheet are laminated; a device for placing the release film on an outer layer of the laminated prepreg sheets". However, there are not two separate and independent devices described for application of the release film via a wrapping operation and a device for placing the release film on the outer surface. As such, the applicant is advised that the device for placing the film upon the outer surface of the laminated prepreg sheets should be deleted. As no additional means for placing the release film on the laminated prepreg sheets has been described, applicant is advised that the claims are being interpreted as if there is only a single means for applying the release tape which is the specified winding means as disclosed.

In the claims, it is suggested that "FRP" be changed to –fiber reinforced plastic— so that it is clear as to what "FRP" stands for.

In claim 1, line 13, "the predetermined number of prepreg sheets" should; be changed to –a predetermined number of prepreg sheets—in order to provide proper antecedent basis for the same. In claim 1, line 21, the language "the hot-pressed

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prepreg sheets" lacks proper antecedent basis as no hot pressed prepreg sheets have been previously defined. It is suggested that the word "the" be deleted. In claim 1, line 22, "the formed prepreg square pipe" lacks proper antecedent basis as not formed prepreg square pipe has been previously recited. It is suggested that "the" be changed to --a--.

In claim 2, line 4, "the tension" lacks proper antecedent basis as no tension has been previously defined. It is suggested that "the" be deleted.

In claim 3, line 4, "the curing temperature" lacks proper antecedent basis. No curing temperature for the prepreg sheets has been previously defined. It is suggested that "the" be changed to --a--.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 2001-328130 (note that US Patent 6,601,627, cited herewith is the English language equivalent to Japanese Patent '130 and assumed to be a translation of the Japanese document to recite everything within Japanese Patent '130) in view of Skoggard et al, Jackson and optionally further taken with Goldsworthy.

Japanese Patent '130 taught that it was known at the time the invention was made to form a square fiber reinforced plastic pipe by molding a semicured prepreg

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material formed by impregnating a thermosetting resin in a carbon or glass fiber wherein the device for forming the same included a device for laminating a predetermined number of prepreg sheets sequentially on a square rod shaped core having a release film disposed thereon. The core onto which the laminated prepreg sheets were disposed has a smaller inner diameter than the final inner diameter of the pipe to be formed. The reference taught that one would have applied a release tape about the exterior of the assembly of prepreg sheets which was applied as release sheets from reels 71 and 72 and which were pressed on the surface with guide rolls 71a and 72a. The reference additionally disclosed a device for hot pressing the prepreg sheets as well as a core disposed before the hot pressing device which included an outer diameter that corresponded to the inner diameter of the square pipe. The reference also included a furnace as well as a device for pulling the assembly through the various stations to form the square pipe. The reference to Japanese Patent '130 failed to teach that the device for application of the exterior release tape was one which wrapped the tape like release film about the exterior of the assembly wherein the release tape also provided for application of pressure during the heat pressing operation by virtue of its heat shrinkability.

The reference to Skoggard et al suggested that those skilled in the art at the time the invention was made would have applied an outer wrap 45 about a composite fiber build up on a core which was provided with an interior layer of material which was resilient and allowed for expansion, see layer 42. The exterior wound layer 45 was a heat shrinkable layer which was applied to the assembly in a winding operation and

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which was applied in order to provide exterior compression of the assembly when heat was applied to cure the resin in the composite material. The reference suggested that the exterior outer wrap 45 was applied under tension in order to provide for radial compression of the assembly. The applicant is referred to column 4, lines 32-62. The reference to Skoggard et al did not expressly disclose the manner in which the wound heat shrinkable exterior layer was tensioned about the assembly. It was clear from the reference that one skilled in the art at the time the invention was made would have desired to apply the exterior wrap about the assembly. It should be noted that Skoggard et al clearly employed the exterior shrink wrap about the composite which included an interior layer which was expandable.

The reference to Jackson expressly depicted specific wrapping means would have been useful for wrapping the exterior of the pipe with the shrink wrap material wherein one was able to control the amount of tension on the wrap with a tension applying means. More specifically applicant is referred to rolls 88 and 89 as well as tension rollers 90 and 91 which were responsible for wrapping the composite material with the wrapping device 87 with a cellophane material (a well known exterior material which imparted a smooth exterior surface and additionally was capable of shrinking when exposed to heat during the curing cycle). It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the wrapping means of Jackson (in order to provide a means for controlling the tension during the application of the wrapping about the core) where it was known to wrap a heat shrinkable tape about a composite core in order to allow for uniformity in the finished

assembly wherein the same was applied with tension as suggested by Skoggard et al wherein one skilled in the art would have understood that the application of the exterior ply of heat shrinkable materials of Japanese Patent '130 would have suitably been applied via the winding operation as such allowed one to control tension on the tape during application to facilitate compaction of the material.

With regard to claim 2, note that Jackson clearly included a tension control means in the operation and the reference to Skoggard et al suggested that those skilled in the art of wrapping the heat shrinkable tape about the core would have understood that it would have been desirable to control the tension of the same. Regarding claim 3, note that Skoggard and Japanese Patent '130 suggested that the exterior ply would have shrunk during processing and it would have been obvious to provide the same in the operation. Note additionally that the heat shrinkability of the wrapped tape is a material limitation which bears little or no weight on the mechanical components of the apparatus. Clearly, the prior art references as cited above were capable of application of an exterior tape via wrapping the same whether the tape was a heat shrinkable tape or not. Regarding claim 4, note that the reference to Japanese Patent '1309 provided for control of the entire operation therein including the pulling of the assembly through the process. While the reference did not incorporate a winder for wrapping the exterior with the heat shrinkable material, one skilled in the art would have expected that inclusion of the same in the system would have additionally been provided with the necessary control means in order to process the material in a continuous/batch operation.

While the references suggested the overall system, to further evidence that those skilled in the art at the time the invention was made would have incorporated a cellophane wrap about the composite material, the reference to Jackson does not expressly state that such a material provided a shrinking in the heating operation to compress the material. However, this was well recognized in the art as evidenced by Goldsworthy. More specifically applicant is referred to tape winding stations 110, 112 which applied tape from spools upon a composite material prior to the curing of the same on a form. The reference expressly stated that the tape applied would have included cellophane tapes which were subjected to shrinking when heated. Applicant is referred to column 10, lines 30-40, column 10, lines 52-column 11, line 6. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a wrapping mechanism which included application of a heat shrinkable material about a resin impregnated material prior to heat curing the resin impregnated fiber reinforced material in order to facilitate consolidation of the material as suggested by Goldsworthy wherein the means for applying the film included a tensioning and wrapping means such as that of Jackson as the wrapping under tension was desirable as suggested by Skoggard et al when applying the exterior layer via wrapping the composite with the tape in Japanese Patent '130.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Japanese Patent 51-131573 suggested that it was known to apply a stretched polyolefin tape over a prepreg material wound on a core in place of a



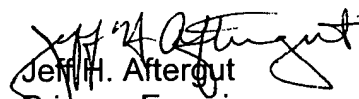
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cellophane tape as the polyolefin tape would shrink and provide a more uniform outer surface for the finished assembly.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff H. Aftergut whose telephone number is 571-272-1212. The examiner can normally be reached on Monday-Friday 7:15-345 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Jeff H. Aftergut  
Primary Examiner  
Art Unit 1733

JHA  
June 23, 2006